CALIFORNIA ACADEMY OF SCIENCES

ANNUAL REPORT 1974-75

CALIFORNIA ACADEMY OF SCIENCES

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A MESSAGE FROM THE CHAIRMAN

My message for the 1974-75 year divides most readily into two parts—the first dealing with the events, accomplishments and requirements which the Academy experienced during its fiscal year just ended; the second, a brief look toward the future, since perhaps the most significant characteristic of this year was that it bridged the period between commencement of our physical expansion and completion of the several elements of that expansion, all of which we hope to place in service during the 1975-76 year now underway.

The report of Director George Lindsay which follows will provide more detail, but I would identify as major features of the 1974-75 year the following:

• Establishment of the James Irvine Chair of Anthropology with an endowment of $500,000, half of which was the result of a grant by the trustees of the James Irvine Foundation with matching funds having been raised by the Academy from other donors. The Academy's Anthropology Department, destroyed in the earthquake and fire of 1906, was reactivated on July 1, 1975 and will be responsible for the large collections of artifacts which have been in the custody of the Exhibits Department.

• Expedition led by Dr. John McCosker, Superintendent of Steinhart Aquarium, to the Comore Island Archipelago in the Indian Ocean, which sought to capture a live coelacanth but returned with numerous rare—some previously unknown—small fishes and a previously captured and frozen coelacanth specimen; involving members of the volunteer Steinhart Divers' group as well as Academy staff, this important expedition was financed by a grant from the Charline H. Breeden Foundation and the assistance of several business organizations.

• Exhibition of many important works of art and sculpture of the late Beniamino Bufano.

• The Academy welcomed a new trustee, Peter McBean, who has served actively throught this year.

The Academy continued during the year to suffer severe financial strain resulting from inflation raising costs at a much more rapid rate than contributions have risen. Had it not been for the extraordinary success of the Laserium Show in Morrison Planetarium under the direction of Captain Risser, the Academy could not have come as close to a balanced operating budget as it did.

In reading the financial statements which follow, and in particular the "Statement of Current Fund—General Operating Revenues and Expenditures", I urge the reader to note that what is there shown as an operating deficit is substantially balanced by the utilization of funds restricted to specific purposes. The Academy is certainly in need of all of the support it can obtain, but the Director and I wish to stress the fact that the institution operates substantially within its means.

While again referring the reader to the balance of this report for more complete information, the Academy enters its 1975-76 year looking forward to the introduction of major additions:

• The Fish Roundabout, a gift of the G. H. C. Meyer Family Foundation, will open early in 1976, providing a facility for viewing sea life unique in North America.

• The Wattis Hall of Anthropology, the lead gift for which comes from the Paul L. and Phyllis Wattis Foundation, should be completed and ready to introduce to the public in the spring of 1976. Addition of this major exhibit hall will round out the Academy as a complete natural science museum.

• Bridging the rear entrance to the Academy will be a lofty new entrance and display galleries one of which, the Atholl McBean Gallery, is the generous gift of the Atholl McBean Foundation.

• On floors above Wattis Hall will be housed the Departments of Botany and Entomology. The Botany facilities will be the beneficiary of the grant of almost $500,000 from the National Science Foundation which will enable the Academy's herbarium collection and the Dudley Herbarium of Stanford University to be consolidated in this facility through use of modern "compactor" storage equipment.

These additional facilities confront our institution with new challenges and opportunities—as well as the necessity of meeting an increased operating budget. We have yet to complete the fund raising effort required to finance the entirety of our expansion, and accordingly our budget projection for 1975-76 contains provisions for some $70,000 in interest costs which result from this shortfall.

In closing, I would express my gratitude and that of all of my fellow trustees to Dr. Lindsay and his fellow members of the Academy staff, to our many members and contributors, and to our volunteers and docents, all of whose efforts combine to make the Academy possible. I have been able to acknowledge only a few individual contributions; there are in fact very many, and we are grateful for each. With continued and added support and supporters, we shall be able to meet the challenges and make the most of the opportunities which lie ahead.

Paul L. Davies, Jr.

Paul L. Davies, Jr.
Chairman, Board of Trustees

REPORT OF THE DIRECTOR

I am pleased to submit this report of some of the activities and achievements of the California Academy of Sciences during its 122nd year of service.

The Academy had 1,360,819 visitors, not including the more than 100,000 who attended evening programs and meetings, and this was an increase of 158,907 over the previous year.

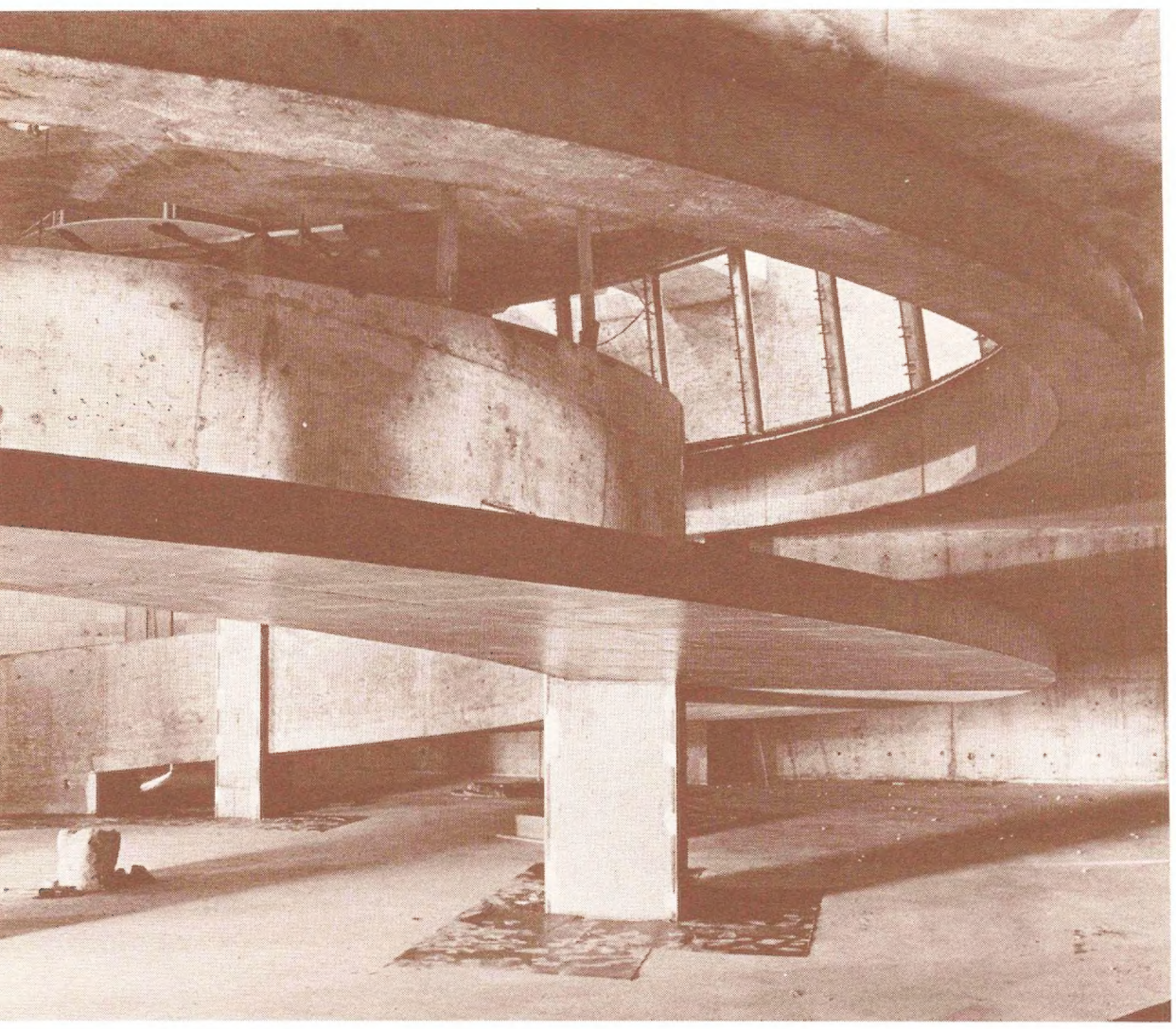
Construction of the Wattis Hall of Man building, the Fish Roundabout, given by the G. H. C. Meyer Family Foundation, and the Atholl McBean Gallery, major elements of the Academy's five million dollar improvement program, was nearly completed.

Dr. Howel Williams, distinguished vulcanologist, Professor Emeritus of the University of California, and an Academy Fellow since 1944, was recipient of the Fellow's Medal on October 2, 1974. On that occasion astronaut-geologist Harrison H. "Jack" Schmitt addressed the assembled Fellows, telling of his geological collecting trip to the moon.

An outstanding exhibition, "The Genius of Beniamino Bufano" opened in December, 1974, to continue for a year. It is the first comprehensive show of the works of that versatile San Francisco artist.

Completed during the year was the ambitious and significant permanent exhibit "African Origins of Man" by Richard Cook and his colleagues, with an enormous amount of encouragement and technical direction from Drs. F. Clark Howell of the University of California, Berkeley; Yves Coppens of the Musee de L'Homme, Paris; and other cooperating scientists who gave generously of their time and knowledge.

While the year was not without some problems, principally financial, which are not yet solved, it was on the whole one of progress and accomplishment. It was a good year, as is shown by the following report.



Above, the Fish Roundabout is an architecturally and functionally unique structure. Right, Wattis Hall of Man and the new Academy entrance on South Drive harmonize with the park environment.

PUBLIC ACTIVITIES

STEINHART AQUARIUM

John E. McCosker, Superintendent. Some fishes are jewel-like in appearance; some are fascinating in behavior. The aquarium displays an unusually comprehensive and diverse assemblage of fishes and other aquatic organisms of all kinds and shapes and sizes. It has, in addition, a fine collection of reptiles and amphibians. The Aquarium is the most popular exhibit section of the Academy, and it is the largest department. It receives substantial support from the City of San Francisco, as well as from many friends and benefactors.

Now, at the beginning of its second half century of public service, the Aquarium is being dramatically expanded with the addition of the Fish Roundabout, a display tank unique in the United States, which will make possible the showing of the free-swimming, schooling pelagic fishes of the open ocean. The Roundabout was the dream of the late Earl S. Herald, who for twenty-five years had charge of the aquarium, and Wilson Meyer, civic leader, Academy Trustee, and President of the G. H. C. Meyer Family Foundation. Together they planned the Roundabout. After Mr. Meyer's death, the Foundation provided a grant of $1,051,000 to make it possible. The construction of the Fish Roundabout continued through the year.

David C. Powell joined the aquarium staff as Assistant Superintendent and Curator on 1 September, 1974, replacing Robert Dempster who retired after 33 years of service, and at that time Tom Tucker was promoted to Senior Aquatic Biologist.

Dr. McCosker led a major expedition to the Comoro Islands early in 1975, in an attempt to capture a living coelacanth fish for display and scientific study. While the expedition did not achieve that goal, it was very successful in other ways, and returned to the Academy with large collections of algae, invertebrates, and fish specimens, many of which were found to be unknown to science. Living specimens of "Flashlight Fish" of the genus *Photoblepharon* were an unexpected reward and are on display, to the delight of scientists and aquarium visitors. The 1975 Coleacanth Expedition was sponsored by the Charline H. Breeden Foundation, with assistance from Air France Airlines and other companies and agencies.

Collecting trips were also made to the Gulf of California with Sea World of San Diego, the Revillagigedo Islands with the Janss Foundation, British Columbia, and many areas of the United States.

Below, Guinea fowl pufferfish, *Arothron meleagris,* collected on the Comoro Islands expedition and exhibited in the tropical gallery.

The Janss Foundation sponsored a trip to Japanese aquariums and fishery laboratories for Dr. McCosker, who also visited Crown Prince Akihito. The Steinhart Divers, an auxiliary group of avocational divers, sent large shipments of marine tropical fishes from the Bahamas and Hawaii.

Mr. Walter Schneebeli, Staff Aquatic Collector, made 79 collecting trips during the year, and brought back thousands of live specimens.

The Academy is indebted to the Charline H. Breeden Foundation, the Janss Foundation, Wilson and Geo. Meyer & Co., Jeffrey Meyer, Maurice Rakowicz of the Kordon Corporation, Air France Airlines, United Airlines, Reichold Chemical Co., and many other organizations and individuals for ongoing support of Aquarium development and activities.

MORRISON PLANETARIUM

Robert D. Risser, Supervisor. There were 888 performances of five public shows during the year, attended by 159,167 people, and 117 special student shows which were seen by 26,965 children who came in class groups. This was a substantial increase over the previous year, and marked a turnaround in student show attendance which had shown a downward trend since 1967, possibly due to the availability and convenience of many small planetaria recently installed in community colleges.

The scheduling of five rather than six conventional public planetarium programs provided more time for planning, special effects construction, and maintenance, with no noticeable adverse effect on attendance. The five program schedule will be continued. Two completely new student shows were designed by Richard Sanjour; one for third graders and younger and the other for grades four through six.

In addition, a sound and light show called Laserium opened in November and was attended by 84,092 by June 30. This popular and profitable addition to the conventional planetarium presentations utilized laser beam projection for uniquely brilliant and beautiful color effects. Revenues from Laserium shows paid for headrests for all planetarium seats, established a special fund for other planetarium improvements, and were an important addition to the Academy's general operating income.

Including the Laserium programs, a total of 270,224 people enjoyed performances in Morrison Planetarium during the year.

EXHIBITS DEPARTMENT

Ernest R. Rook, Curator. Two major exhibits were opened, the one-year show "The Genius of Beniamino Bufano" and the permanent "African Origins of Man." These were in addition to an unusually active year of important temporary exhibitions and of planning the presentations which will be developed in the Wattis Hall of Man.

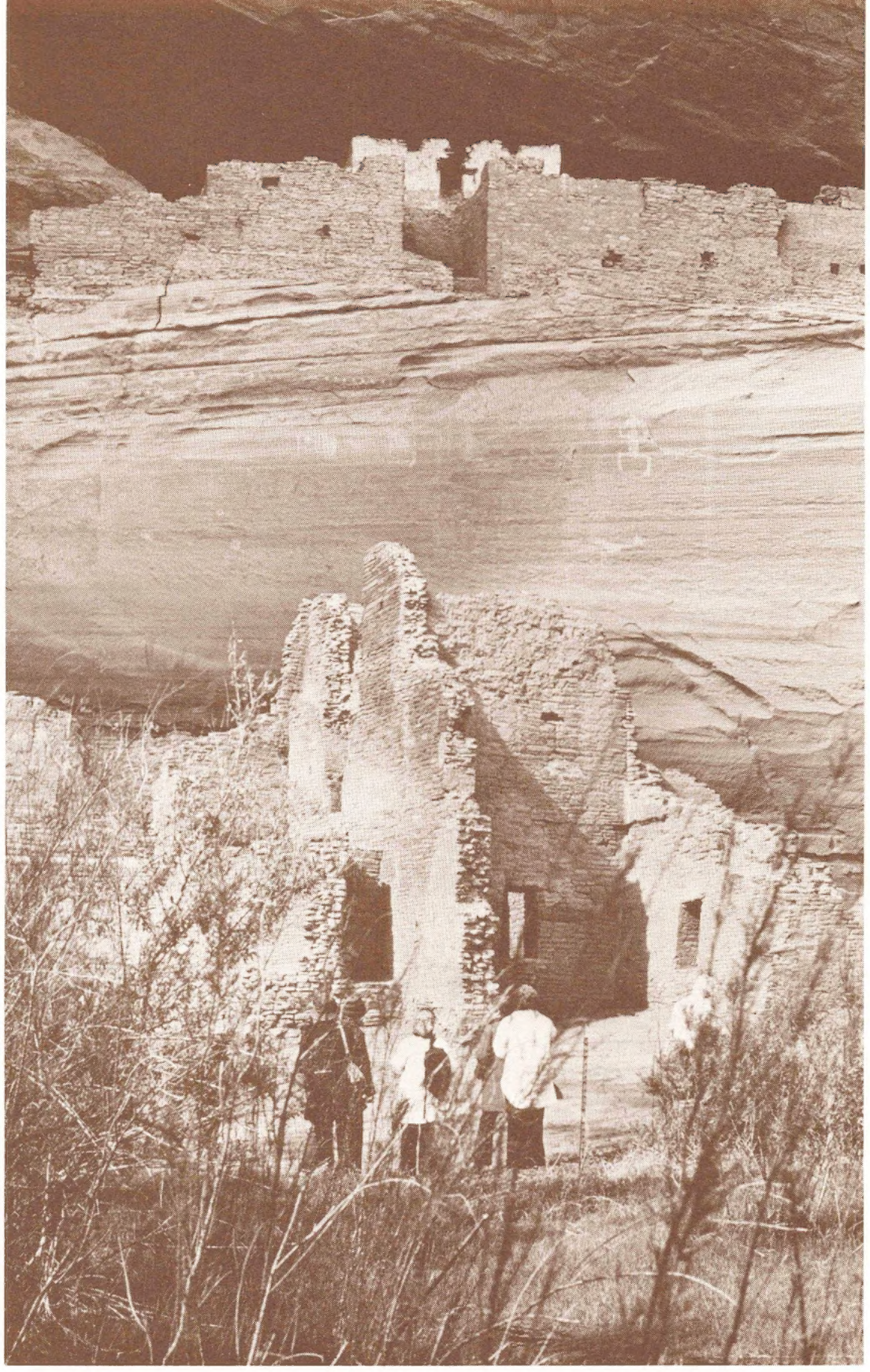
Victor Bergeron suggested the Bufano show, and contacted the Bufano Society and the artist's son, Erskine. First thoughts were to exhibit Bufano's animals, but with the Academy's increasing interest in peoples, the decision was made to mount the first comprehensive show of the famous artist's work in many media and of many subjects. Lovell White Hall, the Whale Fountain Courtyard, and the connecting gallery space between became a wonderland which enchanted viewers of all ages. Following the year-long exhibit, the bear and cubs and possibly some other animal sculptures will remain permanently at the Academy.

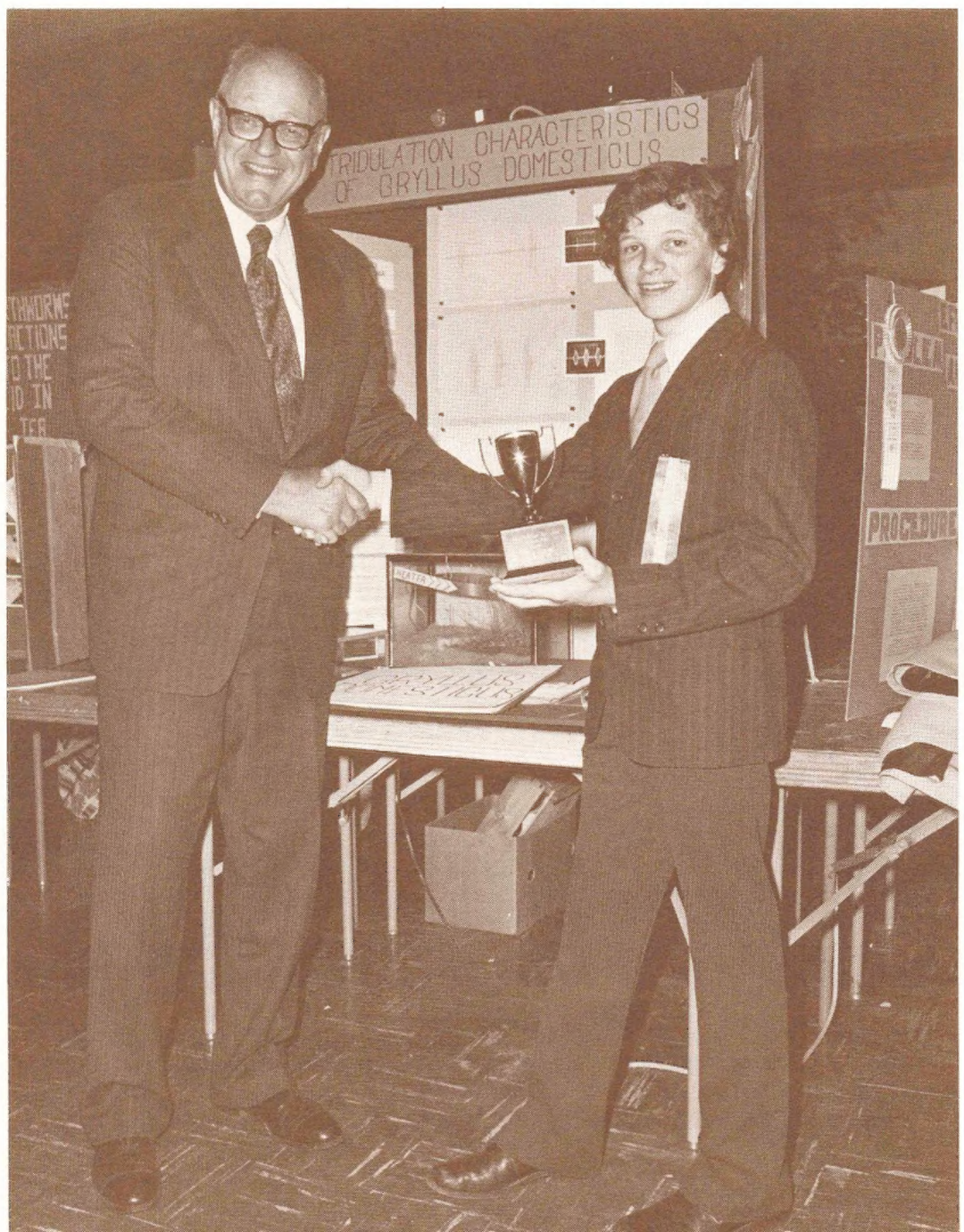
The "African Origins of Man" was designed and executed by Richard Cook and his colleagues, and tells of the African paleoanthropological discoveries of F. Clark Howell and Yves Coppens and others. Dr. Howell in particular gave selflessly as consultant, and involved many of his professional colleagues. The exhibit includes a forty-foot detailed mural showing important African fossil sites. It is expected that the significance of this exhibit, which was partially sponsored by the National Endowment of the Arts and Mr. and Mrs. Sidney Garfield, will be increasingly recognized and appreciated.

A special permanent exhibit facility for rare shells was sponsored by Dr. Joseph B. Wheelwright, who also supplied the treasures it holds.

Three temporary shows in Hohfeld Gallery proved outstanding and deserved longer runs. "Animal, Vegetable

Academy trips for members covered the world. Below, local tidepool excursions attracted capacity crowds. Right, the White House cliff dwellings in Canyon de Chelly, Arizona, were admired by participants of a Southwestern Indian tour.





The encouragement of young people's interest in science is an ongoing Academy objective. Left, Eric R. Gilleland of Oakland receives the Junior Division Academy Award for the Bay Area Science Fair from Director George Lindsay. Above, the Junior Academy offered field trips and classes for 496 members.

and Mineral" previewed the ecological approach that anthropology will receive in Wattis Hall of Man. "Ammonites" displayed superbly prepared fossil specimens provided by Clarence Schuchman of Sacramento, Victor Bergeron, and the Academy's collection. Both exhibits were examples of the talents of Robert Bjorkland. Stuart Meehan and Miriam DeOme were praised by NASA for their "Skylab" exhibit in the same gallery.

A grant of $40,000 from the National Endowment of the Arts, with matching funds from private sources, established a planning team for the anthropology exhibits to be shown in the Wattis Hall of Man. This project, which was initiated by Christine Russell, is now expanded to include anthropologist Richard A. Gould, as consultant, Mr. Rook, anthropologist Nancy Bronstein, archaeologist Allan Muller, and artist Dennis Carlson. Many volunteers and interns from local universities aided all activities of the Exhibits Department.

DOCENT COUNCIL. Mrs. Roy Borgonovo, Chairman, and Diane Butler, Secretary-Coordinator. During the year, the 98 active members of the Docent Council conducted special tours of the Academy's halls for nearly 13,000 students and other visitors, some 1,000 of whom had been contacted earlier in their classrooms by the in-school preparation team. In addition, this most active and organized of volunteer groups gave seminars, served as hostesses and hosts for Academy functions, and took field trips for their own teaching enrichment.

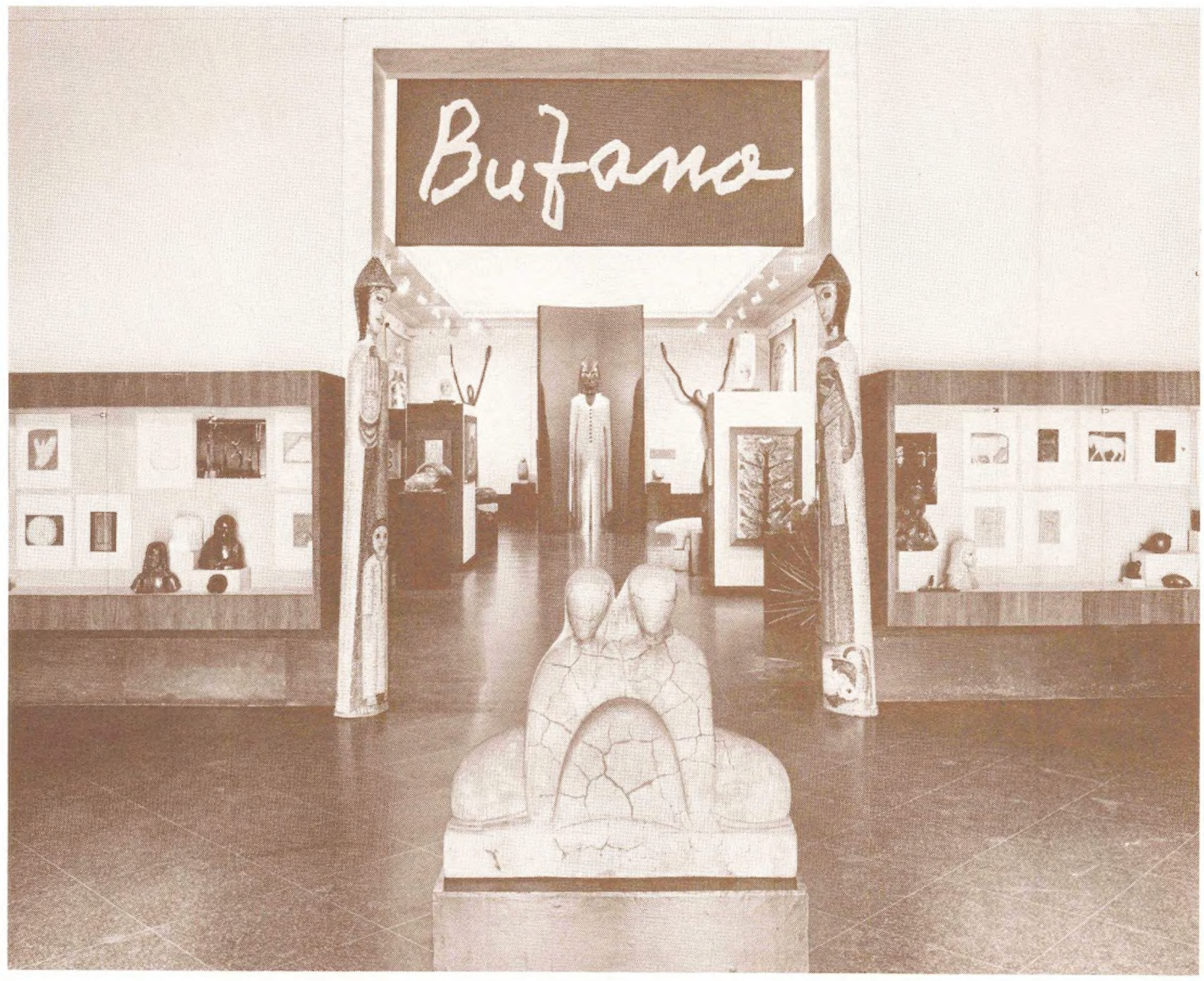
The Council received a grant of $10,000 from the National Endowment for the Arts, to be matched by the Council and Academy, to purchase and outfit a vehicle for the expansion of the Academy's services to schools and other community facilities. The van will be completed and outfitted with special equipment and exhibits, and operational by late fall.

Among special events sponsored by the docents was the fund-raising October Harvest Festival; a Christmas party for the Academy staff; a Docent Forum in cooperation with the American Association of Museums; a three-day workshop for Academy docents; an art contest which attracted more than 300 entries from school students; and the construction of a geologic Time Scale installed in Fossil Hall.

DEVELOPMENT AND MEMBERSHIP. Mrs. Kathleen F. Bowman, Development Officer. The Development and Membership office has many responsibilities. Working with the Academy Trustee Mrs. Ernest R. Lilienthal and her Membership Committee, Academy membership was increased from 7,397 on July 1, 1974 to 8,425 on July 1, 1975. Membership on July 1, 1970 was 4,647.

Trustee John A. Sutro is chairman of the committee for "Friends of the Academy," that special group of benefactors who support the Acadamy with gifts of one thousand dollars or more each year. A list of those fine friends will be found in the financial section, which also includes a list acknowledging the many corporations and foundations who give support. The Trustee's Corporate Support Committee, chaired by Frank E. Hayward, provides the Academy with liaison with the business community.

The Development and Membership Department also helps volunteers select areas of service. The Academy now has



Top, a red cedar log from the Queen Charlotte Islands, the raw material for a future totem pole, was given by the Crown Zellerbach Corporation. Above, the Academy presented the first comprehensive exhibition of the works of Beniamino Bufano, San Francisco artist. Right, African Origins of Man, an exhibit about early human development, included a mural showing fossil localities and prehistoric animals by Richard Cook.

150 volunteers in eighteen departments, from Anthropology and Aquarium to Zoology, Invertebrate. Sixteen volunteers staff the public information desk. Twenty-six helped prepare exhibits. As with most museums, the Academy could not function without volunteers.

EDUCATION OFFICE. Lysbeth Fritz, Education Coordinator. This office was opened two years ago, to coordinate and expand the many diverse activities in the general area of education, including classes, seminars, and members' travel.

Thirty-two courses were given, ranging from one-day travel seminars to semester-long intensive instruction in a specific field, and 838 people were enrolled. University credit was available for most through San Francisco State University. Outstanding among the offerings was a well attended symposium entitled "Whales, Dolphins and Porpoises" on June 1, 1975.

Ms. Fritz also coordinated many aspects of the travel program for members, under the general direction of the Travel Committee chaired by Mrs. George Lindsay. There were 14 trips, ranging from visits to local tide pools to month-long excursions to Australia and New Zealand, to which Dr. and Mrs. Robert T. Orr led two groups in the autumn. The Orrs also led a group to the bird islands of the British Isles in the spring.

JUNIOR ACADEMY. Kenneth E. Lucas, Supervisor. There are 496 members of the California Junior Academy of Sciences, which headquarters on the ground floor of the Science Museum building. These members averaged 12 years of age, and twenty-five courses were offered them. There was increased emphasis on parent - student courses and field trips, to make family participation possible.

Mr. Lucas was assisted by a part-time staff of several university students, as well as advanced Junior Academy members. Fifteen staff members of the Aquarium, Planetarium, Exhibits Department and Research Departments served as special instructors.

The Junior Academy provides opportunity for talented young people to develop their awareness and knowledge of science and natural history. The diverse courses offered allow them to explore new fields and nurture new interests. The 500 youngsters who participated during the past year were part of an activity which has been an important influence on many lives over many years.

J. W. MAILLIARD, JR. LIBRARY. Ray Brian, Librarian. Mr. Brian reports serious problems of the library, because of the continued increase in costs of publications, the need for special support for reclassifying all holdings from the Dewey to the Library of Congress System, the accumulated backlog of journals which should be bound, and the increased demands for service from Academy departments and from the outside scientific and academic community. A substantial new restricted endowment will be required to meet the escalating costs of the library operation and betterment.

The Academy's library serves the whole community, as do other Academy departments. For example, while many references were borrowed from other libraries for the use of our scientists, six times as many were loaned to libraries in 28 states other than California and in several foreign countries. Most requests were from California institutions and industries.

During the year, 506 books and 371 serial titles were purchased, and 463 volumes were bound. Exchange agreements were maintained for the publications of 640 other learned institutions and societies, an important source of specialized journals.

PACIFIC DISCOVERY. Bruce Finson, Editor and Johan Kooy, Art Director. *Pacific Discovery* is the Academy's magazine, a journal of nature and culture. It reflects the interests of the California Academy of Sciences, but it is not a house organ. Six issues are published each year, and circulation is about 10,000. It is a quality publication, and during 1975 received the Graphics Arts

Award of Printing Industries of America for the second consecutive year.

George Lindsay is Managing Editor, and Robert Bowman, Robert C. Miller, and Robert T. Orr are Associate Editors.

PICTURE COLLECTION. Johan Kooy, Chairman. Paintings, drawings, engravings, photographs, and other graphics are included in the over one million illustrations housed within the Picture Collection. It is a major western resource of visual material for publication, exhibit, and research.

Among the numerous acquisitions during the year were the Rietz Collection of Anthropological and Geographical subjects, a Sierra Club gift of botanical slides, and the Sherry Ballard bequest of western nature photography.

The recently organized Academy Stamp Collection is under the jurisdiction of the Picture Collection, and Departmental Associate Muriel French was one of several donors of valuable stamps, giving great impetus to this new project.

The Picture Collection is an outstanding example of the importance of volunteers, because Johan Kooy is the only regular employee in that department and he serves also as Art Director for *Pacific Discovery*. Twenty volunteer assistants carry on the processes of accessioning, storing, and loaning of thousands of pictures every year.

PUBLIC INFORMATION. Hal Richardson, Information Officer. Mr. Richardson keeps the membership informed through the Academy Newsletter which he writes, and he keeps the public informed through news stories he releases. It was a noteworthy year for Academy news, with full coverage of the Comoro Islands Coelacanth Expedition, the opening of the massive Bufano exhibit, and other special events and happenings.

Mr. Richardson schedules speakers and programs for the Academy members' meetings, and on occasion serves as host to Academy visitors.

INSTRUMENT SHOP. Steven B. Craig, Superintendent. The Instrument Shop services all departments, and provides special assistance in the construction and installation of exhibits, noteworthy among which were the "African Origins of Man" and the "Wheelwright Shell Case." It builds and repairs research equipment, Faucault pendulums, and planetarium projection devices. It is additionally responsible for the electrical and lock-keying needs of the institution.

Steven Craig and Frank DeOme also oversaw much of the construction of the Hall of Man, in cooperation with William Ray, who was employed as Clerk of the Works.

RESEARCH ACTIVITIES

The Academy was founded in 1853 for the purpose of conducting and reporting original research, and this remains its principal function. Seven departments, some of which include subdivisions such as Minerology and Conchology under Geology, are primarily concerned with research and the care of scientific collections. Another publishes the results of research. This is a brief report of their activities.

BOTANY. Elizabeth McClintock, Chairman and Curator. About 8,000 specimens were mounted during the year. The herbarium now has 582,500 specimens.

The National Science Foundation granted $491,000 to the Academy for the purchase of a herbarium storage equipment system for the new department quarters in the Hall of Man building. An additional $6,000 was provided by N.S.F. to start the incorporation of Stanford University's Dudley Herbarium with that of the Academy, a move which will be made in the 1975-76 fiscal year and will result in an outstanding new department and herbarium research facility.

Dr. McClintock continued her work with horticultural plants. Dr. Breedlove made two field trips to Mexico in connection with his ongoing Flora of Chiapas project. Mr. Howell pursued his field and herbarium work in the flora of the Sierra Nevada, and Research Associate Gordon True continued studies for a flora of Nevada County.

ENTOMOLOGY. Paul H. Arnaud, Jr., Chairman and Curator. The insect collections contain about 6,210,371 processed specimens, 146,369 having been accessioned during the year. Loans of 92,998 specimens were made to 186 persons in 265 transactions, and specimens were sent to 17 foreign countries.

The Entomology Department will move to new quarters in the Hall of Man building in the fall, and much time was spent completing plans for the new facilities.

Dr. Edward L. Kessel and Mr. Hugh B. Leech were appointed Emeritus Curators following their retirements.

Dr. Ross conducted field work in the Amazon Basin and Panama; Dr. Arnaud in the western states and British Columbia; Mr. Kavanaugh concentrated on mountain faunas of the same areas; Dr. Williams worked in the southwestern United States and Baja California Norte; Richard Haradon, Vincent Lee and Warren Savory collected in Baja California Norte and Sur under an Explorer's Club grant; and Dr. Zavortink and Dr. Smith conducted their field work in the far west.

An outstanding research accomplishment was the completion of studies of the scorpion fauna of Baja California by Dr. Williams. This was a many-year project which had support from the National Science Foundation. Dr. Smith started a two-year N.S.F. sponsored research project on insect morphology. Dr. Philip continued work on the tabanid flies, many of which are of medical importance as disease vectors.

The Entomology Department makes very substantial contributions to insect studies conducted all over the United States and in other parts of the world. In recognition of its importance as a national research resource, the National Science Foundation provides ongoing curatorial support which amounted to $43,600 for the grant year which started June 1, 1975.

GEOLOGY. Peter U. Rodda, Chairman and Curator. Accessions of fossils and Recent shells numbered 1,050 lots, to make a total of 55,853 lots in collections. An additional 277 specimens were accessioned in the type collection which now contains 2,762 primary types.

There were 200 specimens added to the mineral collection which totals 9,564 specimens. Arthur Court donated 61 display specimens, many of which were illustrated in the book "Minerals, Nature's Fabulous Jewels" by Mr. Court and Ian Campbell.

Particularly noteworthy specimens and collections were received from Udo Boerner, Anne Guruswami-Naidu, R. I. Firth, Mr. and Mrs. L. K. Land, George Mendenhall, James Nikas, Mrs. Warren Saltzman, Tom Stump, and Dr. Joseph Wheelwright.

Mrs. G Dallas Hanna continued her invaluable services in caring for the diatom collection. The fifth volume of Dr. Sam VanLandingham's diatom catalogue was published. Mr. Allyn Smith completed an annotated check list of the land snails of Baja California.

During the year, 2,529 specimens were loaned in 22 transactions.

HERPETOLOGY. Alan E. Leviton, Curator and Chairman. The Hall of Man building construction adjacent to the Herpetology Department severely affected its routine activities. Nonetheless, about 1,000 specimens were accessioned, most of them from Southwest Asia and Mexico. The collection contains about 221,000 specimens, and was ranked among the first five of the nation by the Committee of Resources in Herpetology. During the year, more than 3,500 specimens were loaned to

Right top, the Comoro Islands expedition was the most ambitious field activity of the year. Center, James Sutton was the principal investigator of the San Francisco Bay Project, a study of the invertebrate fauna of the bay. Right, Open House provided an opportunity for members to visit the operating departments.

research scientists. Loan requests came from 22 institutions in the United States, and 71 in foreign countries.

Dr. Leviton continued studies of the Arabian and African herpetofauna; Mr. Murphy on the fauna and biogeography of the peninsula and islands of Baja California; Drs. Walter Brown and Angel Alcala on the Philippine herpetofauna; and Mr. Drewes, on scholar's leave until the end of the year, resumed studies of agamid lizards of northern Kenya.

The Herpetology Department operates an active computer center which is used by several other Academy departments for research as well as clerical purposes. This facility was provided by Honorary Trustee Daniel E. Koshland and Mrs. Koshland.

ICHTHYOLOGY. William N. Eschmeyer, Chairman and Curator. During the year, 2,350 lots, containing 16,417 specimens, were accessioned into the fish collection, which now contains about 173,350 lots. Some 796 lots, containing 4,342 specimens, were loaned to 63 ichthyologists and students, and 120 scientists and graduate students used the Academy facilities for their research, some for extended periods. The National Science Foundation provided curatorial support for the collection in the amount of $32,382.

Dr. Eschmeyer continued studies of scorpionfishes. Dr. Tomio Iwamoto's research on grenadier fishes of the eastern Pacific received support from a National Science Foundation grant in the amount of $11,300 for two years. Dr. Warren C. Freihofer continued investigations of nerves of fishes, with support from N.S.F., and under contract with the California State Marine Research Committee, Mr. Anatole S. Loukashkin studied the food habits and feeding behavior of certain commercially important fishes including the northern anchovy, jack and Pacific mackerels, Pacific saury, Pacific hake, as well as the market squid. Mr. W. I. Follet completed several papers on fish remains in archaeological collections and one paper on shark attacks. With Lillian Dempster and Research Associate Carl L. Hubbs, his listing of the California fish fauna continues.

Dr. Eschmeyer was assigned increasing administrative responsibilities, and represents the Academy at the Association of Systematic Collections. He continues as a member of the Board of Governors of the American Society of Ichthyologists and Herpetologists.

INVERTEBRATE ZOOLOGY. Welton L. Lee, Chairman and Curator. The Department now maintains a collection of more than 70,000 lots which is particularly strong in American west coast and southeast Asian taxa, and is of unusual

Below, thrills and spills marked some of the members' trips. This one was on the Stanislaus River in the Sierra Nevada foothills.

historical importance. Major efforts during the year were directed towards a systematic re-organization of the collection, including new cataloguing systems, accession records, and storage arrangements.

Several important research projects are under the direction of Dr. Lee. The San Francisco Bay Project, with Dr. Sutton as Principal Investigator of Phases I and II, supported by a grant from the David and Lucille Packard Foundation, developed a reference collection of several thousand specimens representing more than fifty species, and an extensive bibliography and reprint collection is being assembled.

William J. Light is the Principal Investigator of a National Science Foundation supported study of the Polychaete fauna of the Bay, and he is heading Phase III of the San Francisco Bay Project which will produce identification manuals covering its invertebrate fauna.

Dr. Lee is Co-Principal Investigator of the Monterey Bay Benthic Study which is concerned with DDT degredation and dynamics and its effects on the benthic fauna of that area.

The Department is cooperating with the Oceanic Society in a detailed survey of the marine invertebrate fauna of Southeast Farallon Island.

ORNITHOLOGY AND MAMMALOGY. Laurence C. Binford, Chairman and Associate Curator. There were 82,600 birds and 21,128 mammals in the collection at the end of the year, 165 birds and 98 mammals having been accessioned. Noteworthy additions included the first North American nest and the only downy young of the marbled murrelet known to science, a snow goose banded in Russia and collected in the Sacramento Valley, the first California nest of the painted redstart, and 11 cetaceans and 14 pinnipeds, including a rare beaked whale, *Mesaplodon*.

Other major accessions were the reprint collections of Dr. Robert T. Orr and Dr. Tracy I. Storer, which were donated to the Academy.

Dr. Binford completed a study of the breeding biology of the Marbled Murrelet and two studies on yellow-billed loons, continued research on the birds of Oaxaca, Mexico, and initiated a project on the birds of Golden Gate Park. He conducted field work on the Farallon Islands, and continued as President of the Board of Directors of the Point Reyes Bird Observatory.

Dr. Orr served as Associate Director of the Academy as well as Curator of Ornithology and Mammalogy. He conducted research on the natural history of pikas in the summer of 1974, and led Academy members' trips to Australia-New Zealand, and to the British Isles, in addition to local nature excursions. Dr. Orr also supervised the Academy's study of the biology of the Delta-Mendota Canal, for the U.S. Bureau of Reclamation. This project was carried out by Mr. Larry Eng and associates, and was completed 28 February 1975.

SCIENTIFIC PUBLICATIONS. Jean B. Durham, Editor. Dr. Edward L. Kessel was Editor of Academy Scientific Publications 14 years until his retirement on 1 July 1974, when Assistant Editor Diana R. Young became Editor. Mrs. Young capably filled the position, but for family reasons found it necessary to resign on 30 May, 1975. Mrs. Durham succeeded Mrs. Young as Editor on 1 June 1975.

A total of 403 pages were published between 1 June 1974 and 30 May 1975 —217 pages of *Proceedings* and 186 pages of *Occasional Papers*. On 30 May, 503 pages were in press and to be published during the summer of 1975. The average time between receipt of manuscript and publication was 10 months.

The Publications Committee consisted of George Lindsay, Chairman, Paul H. Arnaud, Jr., William N. Eschmeyer, Alan E. Leviton, and Jean B. Durham.

George E. Lindsay

George E. Lindsay
Director

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Aq	Aquarium	*Ge*	Geology	*OM*	Ornithology and Mammalogy
Bo	Botany	*He*	Herpetology	*PC*	Picture Collection
DO	Development Office	*Ic*	Ichthyology	*PI*	Public Information
Do	Docents	*ID*	Information Desk	*PIn*	Planetarium
En	Entomology	*IS*	Instrument Shop	*Ta*	Taxidermy
		IZ	Invertebrate Zoology		

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Maimie Kamada, *Cashier*
Martha Lordier, *Cashier*
Linda Ponchione, *Cashier*
Gratia Rankin, *Cashier*
Erline Shopes, *Cashier*
Anna Wong, *Cashier*
Kathryn Zwald, *Cashier*
Sue Zwald, *Cashier*
Levelle Alderson, *Guard Supervisor*
Mack Brenes, *Guard*
Otis Chappell, *Guard*
Mike Matulich, *Guard*
James Murphy, *Guard*
Samuel Segrove, *Guard*
Randall Stephens, *Guard*
James Stoffers, *Guard*
Paul Woolf, *Guard*
Kenneth Bradshaw, *Relief Guard*
Darrel Gorel, *Relief Guard*
Charles Vernale, *Relief Guard*

SENIOR SCIENTIST

Robert C. Miller, *Senior Scientist*
Melissa Barbour, *Assistant*

EOA ASSISTANTS

Economic Opportunity Act. Work-study student sponsored by the Federal Government Health, Education and Welfare Department through the University of California, Berkeley, California State University at San Francisco, and the University of San Francisco.

STUDENTS EMPLOYED DURING FISCAL 1974-75:

Patricia Arnold
Dalene Drake
Gwendolyn Edgar
Jill Fabulae
Quinn Sinnott

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CALIFORNIA ACADEMY OF SCIENCES

BALANCE SHEETS—JUNE 30, 1975

ASSETS	Current funds: General operating	Current funds: Restricted to research	Special purposes	Endowment fund	Building fund
Cash:					
Commercial accounts	$ 85,836	$ 32,546	$ 48,426	$ 1,410	$ 56,783
Savings accounts	—	—	106,190	14,142	—
	85,836	32,546	154,616	15,552	56,783
Receivables:					
Research grants (note 2)	—	421,122	—	—	—
Accrued interest and dividends receivable	17,600	—	12,896	—	—
Other	36,809	—	2,163	—	—
	54,409	421,122	15,059	—	—
Inventory of guidebooks, at cost	10,355	—	—	—	—
Prepaid expenses	15,275	—	—	—	—
Investments (notes 3 and 5):					
Commercial property, including a fully depreciated building	—	—	—	608,084	—
Marketable securities	—	—	1,480,036	2,011,219	—
	25,630	—	1,480,036	2,619,303	—
Due from other funds	—	60,789	10,105	41,908	—
Buildings (note 4)	—	—	—	—	—
Collections, library and equipment (note 6)	—	—	—	—	—
Unamortized lease commissions (amortized on the straight-line basis over 40 years)	6,291	—	—	—	—
Total assets	$172,166	$514,457	$1,659,816	$2,676,763	$ 56,783
LIABILITIES AND FUND BALANCES					
Liabilities:					
Accounts payable	33,790	5,096	13,033	—	156,643
Accrued expenses	1,850	—	—	—	—
Other liabilities	12,349	—	—	—	—
Note payable (note 5)	—	—	—	—	74,474
Due to other funds	109,066	—	—	—	3,736
Total liabilities	157,055	5,096	13,033	—	234,853
Fund balances:					
Current unrestricted, available for general operations	15,111	—	—	—	—
Current restricted, designated by donors for:					
Research grants	—	509,361	—	—	—
Special purposes	—	—	440,681	—	—
Irvine anthropology curatorial chair (note 9)	—	—	504,320	—	—
Unexpended plant improvements	—	—	29,994	—	—
Current restricted, under board discretion	—	—	671,788	—	—
Endowment fund, under board discretion	—	—	—	2,676,763	—
Building fund	—	—	—	—	(178,070)
Fund balances	15,111	509,361	1,646,783	2,676,763	(178,070)
Total liabilities and fund balances	$172,166	$514,457	$1,659,816	$2,676,763	$ 56,783

See accompanying notes to financial statements.

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF CURRENT FUND—GENERAL OPERATING REVENUES AND EXPENDITURES

YEAR ENDED JUNE 30, 1975 WITH COMPARATIVE FIGURES FOR 1974

	1975	1974
Revenue:		
Support from the public:		
Corporate contributions	$ 57,735	$ 39,570
Individuals, trusts and private foundations	38,527	63,074
Membership dues	119,154	104,746
Total support from the public	215,416	207,390
Operating income:		
From the City and County of San Francisco for support of operations (note 10)	774,082	685,870
Fees and grants from others	42,667	42,433
Planetarium (including Laserium income of $45,165)	180,111	132,234
Admissions	340,481	314,892
Sales desk royalty	17,340	18,666
Restaurant royalty	68,592	59,590
Other	71,447	52,511
Total operating income	1,494,720	1,306,196
Investment income:		
Net rent from commercial building	176,005	205,330
Interest and dividends	114,778	131,700
Total investment income	290,783	337,030
Total revenue	2,000,919	1,850,616
Expenditures:		
Aquarium and museum	940,278	820,532
Departmental research and curatorial activity	468,060	452,055
Planetarium	82,518	81,211
General and administrative	518,510	496,362
Employees' pension annuity (note 7)	33,902	36,590
Total expenditures	2,043,268	1,886,750
Excess of current operating expenditures over related income and support	$ (42,349)	$ (36,134)

See accompanying notes to financial statements.

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF CHANGES IN FUND BALANCES
YEAR ENDED JUNE 30, 1975

	Current Funds				
	General operating	Restricted to research	Special purposes	Endowment fund	Building fund
Balance at beginning of year	$17,460	$209,799	$1,151,378	$2,933,244	$ 784,559
Additions:					
Current revenue, expendable for research as specified by donor	—	828,523	—	—	—
Contributions, grants and appropriations for endowments and special purposes	—	—	533,220	4,500	1,438,190
Interest and dividend income	—	—	72,266	—	25,289
Other	—	36,148	84,206	—	388
Gain (loss) on sale of securities	—	—	12,214	(40,714)	(19,175)
Total additions	—	864,671	701,906	(36,214)	1,444,692
Deductions:					
Excess of current operating expenditures over related income and support	42,349	—	—	—	—
To finance expenditures of research grants	—	282,842	—	—	—
Indirect costs recovered on research grants	—	41,467	—	—	—
Amounts expended for furniture, fixtures and equipment	—	240,800	28,338	42	6,200
Amounts expended for construction	—	—	—	—	2,540,864
Amounts expended for professional services	—	—	21,254	108	76,480
Other	—	—	97,909	117	22,777
Total deductions	42,349	565,109	147,501	267	2,646,321
Transfers between funds	40,000	—	(59,000)	(220,000)	239,000
Balance at end of year	$15,111	$509,361	$1,646,783	$2,676,763	$ (178,070)

See accompanying notes to financial statements.

ACCOUNTANTS' REPORT

The Board of Trustees
California Academy of Sciences:

We have examined the balance sheets of the funds of the California Academy of Sciences as of June 30, 1975 and the related statement of current fund—general operating revenues and expenditures and statement of changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As described more fully in note 11 to the financial statements, the Academy does not capitalize expenditures for furniture, fixtures and equipment as required by generally accepted accounting principles.

In our opinion, except for the effect on the financial statements of the failure to capitalize expenditures for furniture, fixtures and equipment as described in the preceding paragraph, the aforementioned financial statements present fairly the financial position of the California Academy of Sciences at June 30, 1975 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

San Francisco, California
September 2, 1975

Peat, Marwick, Mitchell & Co.
Certified Public Accountants

CALIFORNIA ACADEMY OF SCIENCES

NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1975

1. Summary of Significant Accounting Policies

The Academy uses the accrual method of accounting with revenue being recorded when earned and expenses recorded when incurred. Government grants are recognized in full when awarded. Gifts of specimens and collections which have no established value are not included in the financial statements.

In order better to present the results of current operations, the Academy now reports current general operating revenues and expenditures in lieu of an overall summary of financial activities.

Donated materials and services are not recorded.

The Academy has the following funds:

a. Current General Operating Fund—This fund accounts for resources used in carrying on the routine operations of the Academy in accordance with the limitations of its charter and bylaws. The governing board exercises discretionary control over these funds.

b. Restricted Funds:

1. The current restricted to research fund accounts for gifts and grants restricted to research projects.

2. The special purpose fund accounts for resources contributed to the Academy for a specific purpose, other than research projects. The resources are currently available for use, but expendable only for the purpose specified by the donor. Funds donated for plant improvements and the Irvine curatorial chair for anthropology are included in the special purpose fund category in the financial statements. Portions of the funds contributed for the use of various aquarium and museum departments may be designated by the governing board to general operations.

3. The building fund accounts for resources contributed specifically for the purpose of constructing the Fish Roundabout and the Wattis Hall of Man.

c. The endowment fund is comprised of unrestricted gifts and bequests. Unrestricted gifts in excess of $10,000 are credited to this fund. The principal amount of the gifts and bequests is not maintained intact in perpetuity. The governing board may exercise its discretion over transfers from endowment funds and disposition of principal. The endowment investment income is credited, as earned, to the current general operating fund.

2. Research Grants Receivable

Grants receivable represent amounts pledged to the Academy for certain operations and for the completion of designated projects in future years. The grants will be collected as expenditures are made for the designated project. A summary of grants receivable follows:

National Science Foundation	$385,438
Other governmental agencies	35,684
	$421,122

3. Investments

Investments are recorded at cost or, if acquired by gift, at their fair market value at the date of acquisition. A summary of the current market value of the marketable securities for each fund follows:

	Book value	Market value
Special purposes	$1,480,036	$1,387,922
Endowment	$2,011,219	$1,701,797

4. Buildings

Under the terms of the Charter of the City and County of San Francisco, no one other than the City may hold title to buildings on City property. As the Academy facilities in Golden Gate Park were acquired, title was transferred to the City and County of San Francisco. The buildings were valued at $14,126,000 by independent appraisal in 1968. Cowell Hall was completed in 1969 at a cost of $1,545,000.

Construction plans for the Academy's building expansion projects were approved in December, 1973. The Academy's new buildings are being constructed on City park lands. Upon completion of construction, title to the buildings will be transferred to the City and County of San Farncisco. The cost of buildings upon completion will be $4.4 million. Through June 30, 1975, $3,470,443 had been expended on the building project (1975, $2,646,321).

The new buildings currently under construction will be financed by contributions and a bank note.

5. Bank Note

During the fiscal year ending June 30, 1975, the Academy obtained a $1.3 million dollar open line of credit, which can be drawn upon to finance construction. At June 30, 1975, the bank had advanced $74,474. The note is due on August 30, 1975. Interest is computed on the unpaid principal balance at a rate of ¼% over the bank's current prime rate. The interest rate on the loan, at June 30, 1975, was 7¼%. Security for the loan is the endowment trust securities.

6. Collections, Library and Equipment

Collections, library and equipment are expensed in the year of acquisition. The Academy staff has estimated the replacement cost of collections, library, and equipment to be in excess of $10,000,000.

7. Employees' Pension Annuity

On January 1, 1964, the Academy adopted a pension annuity plan for all regular full-time staff members under the age of 59 as of that date.

Under the provisions of the plan, the Academy and the employees each fund one-half of the pension cost. The Academy's contributions are based on 5% of the amount of salary subject to Social Security tax and 7½% of the amount of salary above the Social Security tax base. Total pension expense for the year was $33,902. There is no past service liability, and it is the Academy's policy to fund current pension costs.

8. Trusts

The Academy is the ultimate beneficiary under an irrevocable living trust in the amount of $155,520 (market value $129,118). The income of the trust is paid to the grantors and the Academy bears the cost of all trust operations. The assets of the trust are not shown in the accompanying financial statements.

The Academy is the trustee and a fifty percent beneficiary under an irrevocable unitrust agreement which had a market value at June 30, 1975 of $386,869. Six percent of the net fair market value of the trust assets, valued as of the second Tuesday of the month of January of each taxable year, is paid to the grantor. The trust absorbs the cost of all trust operations. The assets are not shown in the accompanying financial statements. Distributions for fiscal year ended June 30, 1975 totaled $23,628.

9. Irvine Anthropology Fund

The Academy was the recipient of a $250,000 gift from the James Irvine Foundation during the fiscal year ending June 30, 1975. The grant was made with the condition that it be matched with new funds by March 31, 1975. That condition was met. The grant was established to endow an Irvine curatorial chair for anthropology.

10. Comprehensive Employment and Training Act

During the fiscal year, the City and County of San Francisco provided Federal funds for the employment of three janitors, three museum guards, and one account clerk at the Academy. These seven persons were assigned as members of the Comprehensive Employment and Training Act of the Federal Government.

11. Departure from Generally Accepted Accounting Principles

The Academy's policy is to expense furniture, fixtures and equipment when such assets are acquired. During the year, the Academy acquired furniture, fixtures and equipment at a cost of $275,380.

CONTRIBUTIONS

Each year we take great pleasure in acknowledging the support given the Academy by business organizations, private foundations and individuals, whose gifts—past and present—have made possible scientific research, curatorial activities, field expeditions, educational programs and public exhibits. A number of Academy programs are funded either directly through gifts, grants and bequests, or indirectly through income from endowment and contributed property. In terms of capital expenditures, all of the Academy's buildings have been made possible by private benefactions. Because of this continued private support, the Academy is ranked as one of the leading museum-research-educational institutions in the country.

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